

Claims

We claim:

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1. A method of achieving a dynamic channel bandwidth in a system, the method comprising the steps of:

initializing a channel aggregation strategy;

establishing a default channel aggregation;

10 receiving a request for a service requiring additional bandwidth from a device;

generating an updated channel aggregation based upon the request and the channel aggregation strategy to create an updated channel aggregation; and

15 signaling the updated channel aggregation to at least one mobile station via an in-band message.

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2. The method of claim 1 further comprising the step of aggregating a plurality of channels according to the needed bandwidth and the channel aggregation strategy.

3. The method of claim 1 further comprising aggregating a plurality of narrowband channels into at least one wideband channel based on the updated channel aggregation.

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4. The method of claim 3 wherein the plurality of narrowband channels are adjacent.

5. The method of claim 3 wherein the plurality of narrowband channels are non-adjacent.

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6. The method of claim 1 further comprising dividing at least one wideband channel into a plurality of narrowband channels based on the updated channel aggregation.

5 7. The method of claim 1 wherein the updated channel aggregation comprises dividing a channel bandwidth into at least one of the following: a plurality of narrowband channels, and a wideband channel.

8. The method of claim 1 wherein the in-band message comprises at least one
10 of: a next bandwidth and center frequency of a transmitter and a receiver of a fixed site; a minimum time duration of a next receive state of a fixed site; and a minimum time duration of a next transmit state of a fixed site.

9. The method of claim 1 further comprising the step of periodically
15 signaling the in-band message to inform newly joining mobile stations of present channel configuration.

10. The method of claim 1 further comprising the steps of:
invoking a wideband channel when wideband services are needed; and
20 invoking non-interfering narrowband channels within a domain of the wideband channel when wideband services are not needed.

11. The method of claim 1 wherein the device is selected from a group
consisting of a mobile station and a fixed host.

25 12. The method of claim 1 wherein the step of signaling is performed via at least one fixed site.

13. The method of claim 1 further comprising the step of, based on the
30 request, determining an amount of additional bandwidth required for the service.

14. A method of achieving a dynamic channel bandwidth in a system, the method comprising the steps of:

loading a channel scan list and a default channel configuration;
directed by the channel scan list, scanning a set of channels for a channel

5 with acceptable signal quality;

receiving an in-band message having an updated channel aggregation; and
modifying transmit and receive channels based on the in-band message.

15. The method of claim 14 further comprising updating the channel scan list
10 and the default channel configuration based on the in-band message.

16. A system for achieving a dynamic channel bandwidth, the system comprising:

at least one fixed site;

15 at least one mobile station in radio frequency communication with the at
least one fixed site; and

at least one resource controller, controlling the at least one fixed site, for
performing at least one of: aggregating a plurality of narrowband channels into at
least one wideband channel; and dividing at least one wideband channel into a
20 plurality of narrowband channels.